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FEDERAL - STATE - PRIVATE COOPERATIVE

SNOW SURVEY and WATER SUPPLY FORECASTS

for

MONTANA & NORTHERN WYOMING



United States Department of Agriculture... Soil Conservation Service

and

Montana Agricultural Experiment Station

As Of January 1, 1960

In cooperation with the U. S. Forest Service, U. S. Geological Survey, National Park Service, U. S. Bureau of Reclamation, State Engineers of Montana and Wyoming and other Federal, State and private organizations.



FEDERAL-STATE-PRIVATE COOPERATIVE

SNOW SURVEYS and WATER SUPPLY FORECASTS

for

MONTANA AND NORTHERN WYOMING

(Upper Missouri and Upper Columbia River Basins)

Report Prepared By:

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Soil Conservation Service
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WATER SUPPLY OUTLOOK

FOR MONTANA January 1, 1960

Snow Surveys made on or about January 1, 1960 at several key mountain stations, indicate that the snow pack is below average.

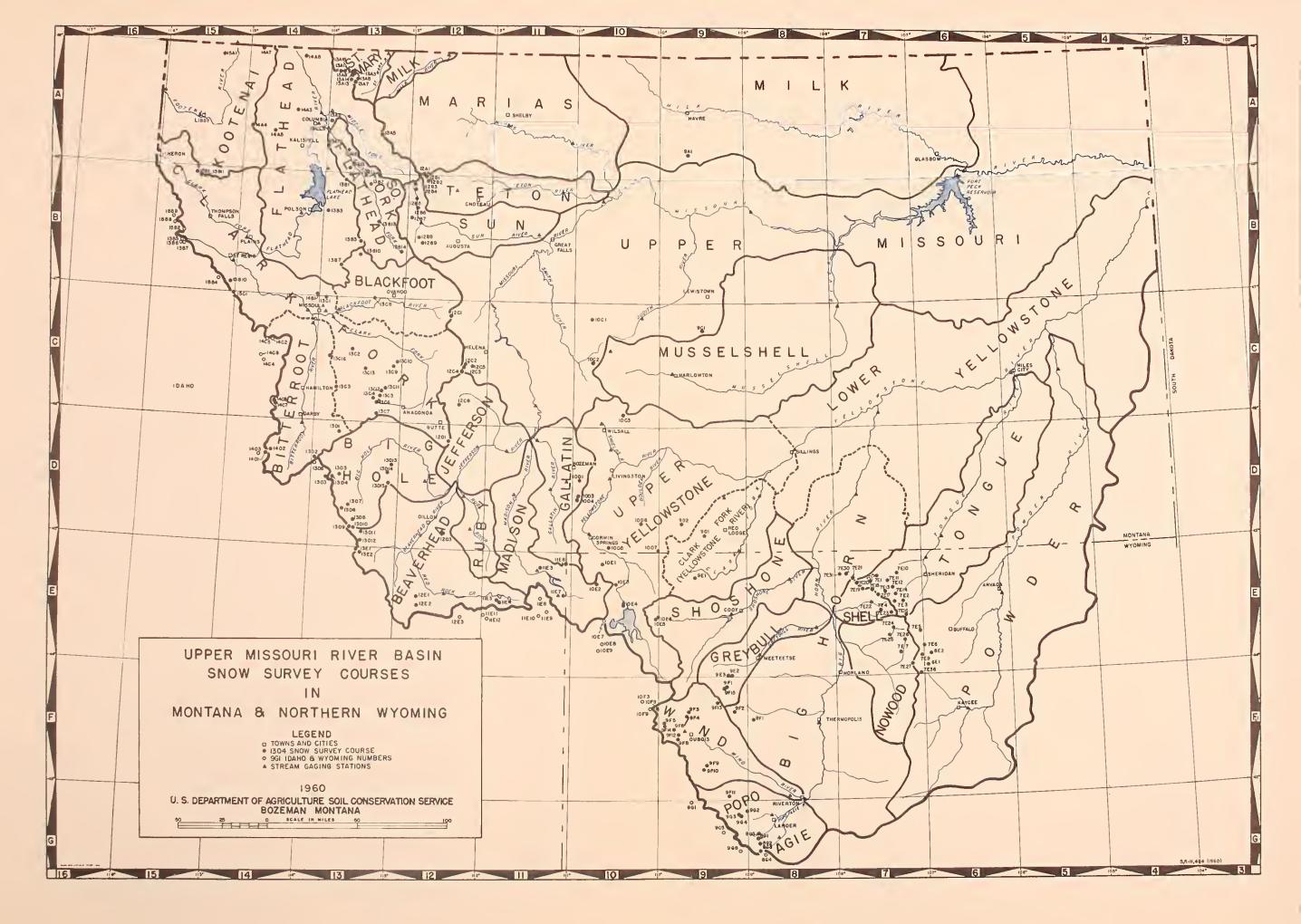
On the Upper Missouri River Basin in Montana the snow cover is 74 percent of last year's and 55 percent of the average January first snow pack.

On the Columbia River Basin in Montana the snow cover is 74 percent of last year's and 61 percent of the average January first snow pack.

On the East side of the Continental Divide the 1960 January first snow-survey measurements in the mountains over individual river basins as compared with last year's January data and the 1943-57 average are: Beaverhead-Jefferson River Basin, 88 and 68 percent; Madison-Gallatin River Basin, 47 and 25 percent; Missouri River Main Stem (Toston to Ft. Benton) 74 and 25 percent; Marias-Teton River Basin, 76 and 87 percent; Yellowstone River Basin (Yellowstone Park to Livingston) 37 and 28 percent. The last comparison is probably the lowest since records began in 1936.

On the West side of the Continental Divide the comparisons are: Flathead River Basin, 72 and 106 percent; Upper Clark Fork River (Butte to Missoula) 88 and 80 percent; Lower Clark Fork River Basin (Missoula to Idaho boundary) 71 and 64 percent.





INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

						INI	DEX '	TO N	MONTAN	A &	NC	JR I	HŁI	KIN	VVI		G DIV				Locatio	on		D 4		
			Locat	ion						Montana		Locati Sec.	on	Range	Record		Measured By	Drainage Basin and Course Name	Montana Number	Elev.	Sec.		Long.	Record Began	Measuring 1	Manager Manage
Drainage Rasin and Course Name	Number	Elev.	Sec. Lat.	Np.	Range Long.	Record Began	Measuring Dates	Measured By	Drainage Basin and Course Name	Number	Elev.	Lat.	AINAGE	Long.	Began	Vacco				MISSOURI	RIVER O	RAINAGE	(cont.)			
JEFFERSW RIVER		MISS	OURI RIV	ER DRAIN	VAGE				(UPPER YELLOW									(TONGUE RIVER Moroe Trail Oiv.	7E19	9200	29	55N	90¥	1956	2,3,4,5	1
(ROUN-BLAVERHE Lakeview Ridge	1123	7400	27	148	2W	1948	3,4,5	10	Camp Senia	901 10E3	7890 7750	الله-الله الله-الله	88	18E 110°-30'		1,2,3,4,5 1,2,3,4,5	1 6 6	Lake Oenove North Tongue	7E16 7E15	9000 8800 8000	7 17 10	52N 55N 55N	8/W 89W 88W	1956 1956 1956	2,3,4,5 2,3,4,5 2,3,4,5	1 1
Limekiln Mimekiln White Pine Ridge	1134 1282 1281	6930 6950 8850	26 5 18	148 158 148	2W 9W 9W	1948 1948 1948	3,4,5 3,4 3,4	10 1 1	Canyon Cooke City Crevice Mt.	1007 1005	7400 8400 8000	25 22 22	9S 9S 7S	1կE 9E 12E	1937 1935 1940	3,4 3,4	2	Sibley Lake Sucker Creek Steamboat Point	7E11 7E12 7E10	9000 7500	19	55N 5CN	87¥ 87¥	1956 1956	2,3,4,5 2,3,4,5	1
(HORDE PRAIRIE)									Independence Lake Camp Lupine Creek	10D6 10E4 10E1	7850 7300	141°-34°		110°-24° 110°-37° 106W		1,2,3,4,5 1,2,3,4,5 2,3,4,5	6 1,4	Wood Rock O.S.	7E13	8500	3	5LN	86 ₩	1956	2,3,4,5	1
Bloody Dick Gold Stone	13D10 13D9	7600 8100	12 11	8s 8s	16W 16W	1948 1948	3, L 3, L	1	Lodgepole West Rosebud	9E1 9D2	8200 7500	32 10	56N 78	16E	1960	1,2,3,4,5	4	(POWDER RIVER)	6E2	8200	6	47N	8LN	1956	2,3,4,5	1
Lemhi Pass Terrell Creek Trail Creek	13E1 13012 13E2	7480 6650 7090	9 14 15	10S 9S 10S	15W 15W 15W	1948 1948 1948	3,4 3,4 3,4	1 1 1	(SHIELDS RIVE	R) 1003	6500	10	i _u n	10E	1938	4, 3	1	Muddy Creek O.S. Munkers Pass	6E1 7E8	7800 9700 8300	2 11 20	48н 48н 47н	85พ 85พ 85พ	1956 1950 1956	2,3,4,5 2,3,4,5 2,3,4,5	1 1 1
Selway Junction	13011	6800	27	88	15W	1948	3,4 3,4	1	LOWER YELLOWSTONE									North Powder #2 Onion Gulch Soldier Park	7E36 7E27 7E5	8100 8700	31 36	LEN 51N	85₩ 85₩	1956 1950	2,3,4,5	1
(BIG HOLE) Big Hole Pass	1303	7240	28	38	18W	1948	3,4	1	(WIND RIVER)		8800	36	12N	109W	1955	2,3,4,5	1	Sour Dough	7E6	8500	17 JIMBIA RI	49N VER BASI	N SI _I W	1936	2,3,4,5	1
Big Hole Pass-Be. Bast Boundary	1304 1305	6900 6700	2L 22	35 38	16W 17W	1948 1948 1934	3,4 3,4	1 1 1,3	Big Warm Brooks Lake #3 Burroughs Creek	9F12 10F8 9F4	9200 8800	23 15	777N	110W 107W	1939 1948	2,3,4,5 2,3,4,5	1	KOOTENAI RIVER		902			_			
Gibbons Pass Jahnke Creek Miner Forks	1302 1308 1306	7100 7340 7300	25 24	2S 7S 6S	19W 16W 17W	1948 1948	1,2,3,4,5 3,4 3,4	1	Dinwoodie Dry Creek	9F10 9F9 9F6	10000 9500 8750	21 34 27	39N 4N 42N	105W 6W 108W	1948 1948 1940	2,3,4,5 2,3,4,5 2,3,4,5	1	Baree Creek	15811	5500 6000	6	25N 25N	30₩ 31₩	1956 1937	4,5,5 4,5,5	
Miner Lake (WISE RIVER)	1307	6720	10	6S	16W	1945	3,4,5	1	DuNoir East Fork Geyser Creek	9F13 9F7	9200 8500	23	LLL N	104W 108W	1956 1948	2,3,4,5	1	Baree Mountain Red Mountain Weasel Divide	15B1 15A1 14A7	6000 5450	4 8	36N 37N	5₽M 53M	1937 1955	3,4,5,5 4,5,5	1,2
Anderson Mdw.	13D1L	7000	18	38	12W	1948	3,4	1	Little Warm Sheridan R.S. #1	9F8 9F5 9F14	9500 7500 7500	2h 3	75N 75N 77H	108W 109W 109W	1948 1939 1955	2,3,4,5 2,3,4,5 2,3,4,5	1	FLATHEAD RIVER	200164	r	11	19N	12W	1951	2,3,4,5	2
Elk Horn Wise River	13D15 13D13	8450 6 300	15 15	2S 14S	12W 12W	1935 1948	3,4,5	1	Sheridan R.S. #2 T-Cross Ranch Togwotee Pass	9F3 10F9	8000 9600	1 29	fifth fith	107¥ 110₩	1940 1936	2,3,4,5 2,3,4,5	n 1	Basin Creek Big Creek Brush Creek	1381LA 1383 14A4	5000 6750 5000	647	22N 30N	18W 26W	1941 1937	3,4,5 3,4,5	5
(RUBY RIVER)	2222	6050	22	9.0	21.1	عمارة	2 l. c	,	(POPO AGIE RI	VER) Wyom	ing							Cattle Queen Desert Mountain	13A1 13A2H	4700 5600	7 24	35N 31N 32N	17W 19W 22W	1939 1937 1942	3,4,5 1,2,3,4,5 3,4,5	6 1,2 1,2
Flashlight	1203	6950	22	88	7₩	1945	3,4,5	1	Blue Ridge Bruce's Camp	802 805	9500 6500	23 24	31N 32N 2S	101W 101W 3W	1939 1955 1948	2,3,4,5 2,3,4,5 2,3,4,5	1	Hell Roaring Div. Holbrook Kiehenehn	14.43 13.81.34 14.46	5770 4530 3886	35 18 14	21N 37N	13W 22W	1951 1954	1,2,3,4,5 4,5	2 6
MADISON RIVER	11E5	6550	22	113	3E	1934	1,2,3,4,5	3	Mobb's Park Mosquito Park R.2 Sawmill Glade	9G3 9G1 8G1	10000 9500 8500	22 23 3	2S 31N	3W 101W	1940 1940 1939	2,3,4,5	1	Logan Creek Marias Pass	14.45 1345H	4300 5250 4000	34 34	30N 30N 35N	24.મ 17.મ 12.મ	1937 1934 1957	3,4,5 1,2,3,4,5 3,4,5	3
West Yellowstone Norris Basin	11E7 10E2		على ئىلەنلىن	138	5E 1100-42	1934	1,2,3,4,5	3	South Pass St. Lawrence	8G3 9Fll	9000	13 26	30N 1N 2S	101W LW 2W	1939 1940 1948	2,3,4,5 2,3,4,5 2,3,4,5	1 1 1	Mineral Greek Quintonkon Spotted Bear Mt.	13A16 13A13 13B2H	3800 7000	29 11 23	26N 25N	17# 15W	1951	2,3,4,5 3,4,5	1,2 1,2
									Trout Creek (OWL CREEK)	9G2 Nowing	8400	,	23					Strawberry Lake Trinkus Lake	13A10 13B1	6500 6500	9	28N 28N 28N	19W 17W 17W	1948 1948	3,4,5 3,4,5	2 2 1,2
GALLATIN BIVER									Beavers Mill Owl Creek	9F2 8F1	8900 8700	6 36	43N 43N	101W	1948 1948	2,3,4,5	1	Trout Lake Twin Greeks Upper Holland Lk.	13A12H 13B11 13B5	3600 3580 7000	21 14 28	26N 20N	16W	1951	3,4,5 2,3,4,5 3,4,5	1,2
Devil's Slide Hood Meadow	1004 1003	8100 6600	11 ₄ 22	5S 4S	6E 6E	1935 1935	2,3,4,5	2,1	(GREYBULL RIV	ER) Wyomin								CLARK FORK		2700	,	25N	30 <i>n</i> l	1956	4,5,5	2 2
New World 21-Mile	1051 11E6	6700 7150	24	3S 11S	6E SE	1939 1934	1,2,3,4,5	7	Timber Creek #1 Timber Creek #2 Wood River #1	9E2 9E3 9F1	8800 8800 8000	25 - 25 28	47N 47N 46N	103W 103W 103W	1948 1955 1939	2,3,4,5 2,3,4,5 2,3,4,5	1	Baree Creek Baree Mountain Black Pine	15B11 15B1 13C13	5500 6000 7100	6 1 25	25N	31W	1937 1960	4,5,5 3,1,5	
MISSOURI REVER MAIN	STEM								Wood River #2	9715	8000	28	46N	103W	1956	2,3,4,5	1	Coyote Mill El Porado Mine	13310 1309	4200 7800	12 23	180 84	164 124	1952 1949	1,2,3,4,5 4	2
Chessman Reservoir Crystal Lake	1205 901	6200 6100	2 19	811 12N	SW 18E	1936 1941	1,2,3,4,5	3 1,2	(SHOSHONE RIV	TER) Wyomin 10E6	g 7000	17	52H	109W	1948	1,2,3,4,5	6	Freezeout Summit Gold Creek Lk.	13011 15B10 13010	8000 6800 72 00	12 21 1h	61 15X 8N	134 274 124	1957 1937 1949	3,և,5 և,5 և	2
Gresshopper Eings Hill	1002 1001	7000 7950	19 35	9N 13N	8E 7E	1938 1934	3,4 3,4,5	2	Sylvan Pass	1025	7100	12	52N	110W	1936	1,2,3,4,5	6	Moodoo Greek Intergaerd	1501 1304	6200 6450	9	ЩN SN	27W 13W	1937 1936	4,5 2,3,4	2
Picnic Grounds Pipestone Pass Stemple Pass	1206 12D1 12C1	6500 7200 6900	10 10 16	5N 1N 13N	6₩ 7₩ 7₩	1941 1938 1934	2,3,4 2,3,4,5 3,4,5	1 3	(NOWDOD CREEN Cold Springs Camp		8700	1	50N	88W	1956	2,3,4,5	1	North Fork Jocko Pipestone Pass	1308 1387 1201	6130 7200	11 3 10	14n 17n 1n	15₩ 17₩ 7₩	1951 1941 1938	1,2,3,4,5 3,4,5 2,3,4,5	5
Ten Mile Greek L Ten Mile Greek M Ten Mile Greek U	1202 1203 1204	6250 6800 8000	13 13 19	8n 8n 8n	6W 6W 5W	1935 1934 1935	1,2,3,4,5 1,2,3,4,5 1,2,3,4,5	3	Medicine Lodge Li Munkers Pass North Powder	7E2L 7E8 7E36	9500 9700 8300	7 11 20	51N 48N 47N	87W 85W 85W	1956 1950 1956	2,3,4,5 2,3,4,5	1	Red Lion Slide Rock Mt.	13012 1302	7000 7100	27 35	6N 10N	13W 16W	1958 1937	3,4,5	1
(TETON RIVER)	1204	0000	1)	014	,,,	1737	1,2,0,4,0	,	Onion Gulch Tensleep Lake	7E27 7E26	8100 9075	31 33	48N 50N	85W 86W	1956 1956	2,3,4,5 2,3,4,5 2,3,4,5	1	Southern Gross Stemple Pass Storm Lake	1305 1201 1307	6500 6900 7780	8 16 19	5N 13N นัก	13W 7W 13W	1936 1934 1939	2,3,4 3,4,5 2,3,4	3
Preight Greek	12A1 12E2	6000 5600	13 16	26N 25N	10W 9W	1948 1948	3,4 3,4	1	Tensleep R.S. Tyrell R.S.	7E7 7E35	8300	30 30	49N	86W 86W	1935 1956	2,3,4,5 2,3,4,5	1	Stuart Mill Stuart Mountain	1306 1301	6500 7400	19 6	SN LLN	13W 18W	1936 1936	يا,3,4 يا	1,2
West Fork	1281	6000	6	25N	9.M	1948	3,4	i	(SHELL CREEK)									TV Mountain BITTEPPOOT RIVER Ambrese	1481	6800 6475	33	15N	19W	1956	1,2,3,4,5	1
(SUN RIVER) Benchmark	1288	5500	9	201	10W	1948	3,4	1	Bald Mountain Beaver-Tongue Div. Sone-Spring Div.		9600 9200 9200	33 12 32	56N 55N 55N	91W 91W 89W	1956 1956 1956	2,3,4,5 2,3,4,5 2,3,4,5	1 1 1	East Fork R.S. Gibbone Pass	13D1 13D2	5400 7100	28 16 4	9N 2N 2S	18W 17W 19W	1960 1937 1934	3,4,5 4 1,2,3,4,5	i 3,1
Cabin Greek 5-Bull Gates Park	1236 1239 1235	5400 5600 5300	33 36 31	20N 20N	10W 10W 10W	1949 1948 1949	3,4 3,4 3,4	1,2	Granite Creek Car Granite Pass	np 7E22 7E17	7800 8950	15 19	53N 54N	89¥ 88¥	1956 1956	2,3,4,5	1	Lost Horse Nez Perce Camp	14:05 14:07 14:02	5230 5940 5580	16	38N LN	15E 23W	1956 1960	3,4,5,5 3,4,5	2 1
Goat Mountain Wrong Ridge	1287 1283	7000 6800	20	22N 25N	10W 10W	1934 1949	3,4 3,4	1,2 3 1,2	Horse-Trail Div. Ranger Creek Shell Creek	7E19 7EL 7E23	9200 8800 9600	29 32 12	55N 53N 52N	90W 88W 88W	1956 1935 1956	2,3,4,5 2,3,4,5 2,3,4,5	1	Yez Ferce Pass Powell R.S.	14:01	6575 4230	1942 32 33	0 1S 28N 37N	23¥ 17E 14E	1937 1937 1956	3,4,5 5,5,4,4,5,5 3,4,5,5	
*Tong Creek (MARIAS RIVER)	12E4	5700	32	25N	10W	1949	3,4	1,2	(PORCUPINE C			10	76.11	001	1/,0	2,3,4,5	1	Skalkaho Summit Twin Lakes	1303 1408	7259 6510	30 32	6N 51:	17W 23W	1937 1960	ل 3 , لا ج	1
Marias Pass	13A5M	5250	34	30N	JŢM.	1934	1,2,3,4,5	3	Five Spge. Falle Medicine Wheel	7£31 7E30	7500 9000	19 24	56N 56N	92W 92W	1956 1956	2,3,4,5 2,3,4,5	1	ST. MARY RIVER Iceberg Lake #3	1343	5600		RIVER B	113°-43'	1922	ς	
(MILE RIVER)									(TONGUE RIVE				701	7="	2,,,0	-101010	1	Josephine Upper Josephine Lower (Mount Allen #7	13A15 19 13A1L	5000 4900	48°-50	1	113°-42' 113°-41'	1956 1955	5	3,9
Eocky Boy (MUSSELSHELL BI	9AI 772)	5200	15	28N	162	1941	3,4	7	Beaver Tongue Di Big Goose #1	7E2	9200 7700	12	55N 53N	91W 86W	1956 1935	2,3,4,5 2,3,4,5	1	Piegan #6 Pts migan #8	13A7 13A6 13A8	5700 5500 5800	480-46	Įπ j	113°-և1† 113°-և1‡ 113°-ևև†		5 5	3,9 3,9 3,9
Grasshopper	1002	7000	19	911	82	1938	۵,4	2	Big Goose #2 Bone-Spring Oiv. Burgess R.S. #1	7E32 7E16 7E1	7700 9200 7900	ل 32	53N 55N 56N	86W 89W 89W	1955 1956	2,3,4,5	î									
									Burgess R.S. #2 Oome Lake #1 Dome Lake #2	7E33 7E3 7E34	7900 8800	36 11	56N 53N	89W 87W	1950 1955 1950	2,3,4,5 2,3,4,5 2,3,4,5	1 1 1	a. Numerale 1,2,								ay 1.
									Gloom Greek Granite Pass	76.14 76.17	9300 8950		53N 55N 54N	87₩ 87₩ 88₩	1950 1956 1956	2,3,4,5 2,3,4,5 2,3,4,5	1	b. Numerals refe	ation Serv		coures t	ne snow:			s: Experiment Sta	ition
PSP+ SCS PCSp. 4 4184 1953													, ,		273.	2,7,4,5	1	2. U. S. Porest 3. U. S. Guologi 4. Montana Power	Service				8. 0 9. I	City of E Cominion	Boseman Water & Power	- Puresu
																		5. U. S. Indian 6. National Park	Service		- Soil H		11. (J. S. Dur	th and Wildlif reau of Reclam State Forestry	ation
																				**	202		100	- Primeria i	5.8-1).48h	

CCMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

Summary of Snow-Survey Data by Tributary Watersheds January 1, 1960

TRIBUTARY BASINS	No. of Courses Averaged	No. Years Used		Water Equivalent as Percent of Average	
<u> </u>	ISSOURI RIVE	R BASIN IN	I MONTANA		
Beaverhead-Jefferson	9	8-15	88	68	
Madison-Gallatin	7	15	47	25	
Missouri Main Stem	4	15	79	82	
Marias-Teton	1	15	76	87	
UPPER YELLOWSTONE	5	5-11	37	28	
<u>0</u>	OLUMBIA RIVE	R BASIN IN	I MONTANA	1	
Flathead	5	5-15	72	106	
Upper Clark Fork	7	8-15	88	80	
Lower Clark Fork	5	5-8	71	64	

VALLEY PRECIPITATION 1/ Division Averages and Departures In Inches

DRAINAGE DIVISIONS	Fal <u>SepOct</u> Average		December 1959 Average Departure 2			
	COLUMBI	IA RIVER BASIN				
Clark Fork	5.05	+2.15	0.19	-0.81		
Flathead	10.04	+4.83	0.94	-1.17		
Columbia in Canada	9.46	+3.69	1.98	-1.05		
Kootenai	11.89	÷5.80	2.29	-0.77		

Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Service of Canada and U. S. Weather Bureau.

^{2/} Departure from 15-year (1943-57) drainage division average.



AVAILABLE SOIL MOISTURE as of January 1, 1960

Drainage Basin and Station	Station No.	Elev.		rofile Inches Cap.	Date	Soil Moist in Inches 1960 195	About Ja	n. 1.	Y
MISSOURI Gallatin					NA ANALYSIS STATES AND ANALYSIS ANA			1	And seemed from the state of the seement of the see
College Site	11D2M	4856	54	14.48	12/31	8.82 8.4	6 8.70	8,66	3
COLUMBIA Flathead									
Marias Pass	13A5M	5250	54	8.39	12/26	6.58 6.0	6 4.48	5.66	4

AVAILABLE SOIL MOISTURE as of October 1, 1959										
MISSOURI										
Gallatin										and plant spent to the first constraint and the state of
College Site	11D2M	4856	54	14.48	10/2	8.61	6.83	4.41	5.77	4
COLUMBIA Flathead								Separation of the separation o		The second country of many or the many of the second of th
Marias Pass	13A5M	5250	54	8.39	10/1	5.60	4.50	3.14	4.35	4



MONTANA SNOW SURVEYS ABOUT JANUARY 1, 1960

MISSOURI DRAINAGE

Current Information Past Record										
					THE RESERVE AND ADDRESS OF THE PARTY OF THE			37		
	Channel Channel		Date	Snow			tent (In.)	Years		
** -	Snow Course	777	of		Content		15-Year	Record		
No.	Name	Elev.	Survey	(In.)	(In.)	Year	Average	Used in		
							1943-57	Average		
BEAVER	BEAVERHEAD-JEFFERSON BASIN			n may opposite the many opposi						
12E3	Camp Creek	6800	12/28	18	2.3	1.4	4.4*	14		
1205	Chessman Res.	6200	12/28	6	1.1	2.0	2.2	15		
13D2	Gibbons Pass	7100	12/29	25	5.9	9.5	11.2*	8		
11E12	Kilgore	6200	1/1	14	2.0	_	4.8*	13		
12D1	Pipestone Pass	7200	12/30	12	2.8	1.4	~			
1307	Storm Lake	7780	12/30	21	4.7	5.6	on the same of the			
1202	Tenmile, Lower	6250	12/30	14	3.3	3.5	3.5	15		
1203	Tenmile, Middle	6800	12/30	20	4.4	5.8	5.4	15		
1204	Tenmile, Upper	8000	12/31	31	6.0	7.5	6.7	15		
1// 57/00				- Aller						
MADISO	N-GALLATIN BASIN		, more distributional designations.							
11E9	Big Springs	6500	12/31	13	1.5	4.3	8.2	15		
11E5	Hebgen	6550	1/3	14	2.0	3.4	5.9	15		
llE10	Island Park	6315	12/31	14	1.5	2.1	6.3	15		
10E2	Norris Basin	7500	1/1	12	1.4	3.7	5.0*	4		
11E6	Twenty-One Mile	7150	1/2	16	2.5	5.1	8.6	15		
11E8	Valley View	6500	12/31	14	1.5	2.7	5.8	15		
llE7	West Yellowstone	6700	1/2	9	0.8	2.4	5.7	15		
MISSOU	RI MAIN STEM			# Distillability or experience of a second						
1205	Chessman Res.	6200	12/28	6	1.1	2.0	2.2	15		
1202	Tenmile, Lower	6250	12/30	14	3.3	3.5	3.5	15		
1203	Tenmile, Middle	6800	12/30	20	4.4	5.8	5.4	15		
1204	Tenmile, Upper	8000	12/31	31	6.0	7.5	6.7	15		
1,204	Totalia to g oppor		1~/)1	7.1	0,0	10)	0.7			
MARIAS	S, TETON & SUN BASI									
13A5M	Marias Pass	5250	1/4	26	7.0	9.2	8.1	15		

^{*} Average for years of record shown in 1943-57 base period.



MONTANA SNOW SURVEYS ABOUT JANUARY 1. 1960

COLUMBIA DRAINAGE Current Information Past Record Date Snow Water Water Content (In.) Years of Depth | Content | Last 15-Year Record Snow Course No. (In.) Name Elev. Survey (In.)Year Average Used in 1943-57 Average UPPER YELLOWSTONE BASIN 10E3 12/31 Canyon 7500 14 1.5 6.0 6.8* 11 12/31 10D7 Cooke City 7400 10 1.9 3.6 4.1* 11 12/31 10E4 4.7* Lake Camp 7850 10 1.0 3.4 9 12/31 1.6 lOEl Lupine Creek 7300 12 3.1 4.8* 4 12/31 10E2 Norris Basin 12 7500 1.4 3.7 5.0* 4 FLATHEAD BASIN 12/23 13A2M Desert Mountain 5600 30 8.7 7.6 6.0* 8 1/4 13A5M Marias Pass 5250 26 7.0 9.2 8.1 15 12/29 13B2M Spotted Bear Mt. 7000 24 6.9 9.9 12/31 12/28 13A12M Trout Lake 3600 21 5.9 6.8 13B11 Twin Creeks 3580 16 5.6 6.2 UPPER CLARK FORK BASIN 1205 Chessman Res. 6200 12/28 6 2.0 1.1 2.2 15 1/5 1308 Lubrecht For. #6 4040 1.9* 4 1.3 1.1 8 12/30 12/30 12D1 Pipestone Pass 7200 12 2.8 1.4 1307 Storm Lake 7780 21 4.7 5.6 12/30 1202 Tenmile, Lower 6250 14 3.3 3.5 3.5 15 12/30 1203 Tenmile, Middle 6800 20 4.4 5.8 5.4 15 12/31 1204 Tenmile, Upper 8000 31 6.0 7.5 6.7 15 LOWER CLARK FORK BASIN

¹³Bl0 Coyote Hill 4200 1/4 16 4.2 4.9 5.2* 6 12/30 15B2 Lookout 5250 43 11.2 16.2 18.0* 8 1308 Lubrecht For. #6 4040 1.3 1.1 1.9* 6 4 14B1 TV Mountain 6800 1/6 6.2 35 31 7.8 Fish Lake Airstrip 5000 1502 41 10.2 15.7 16.9* BITTERROOT BASIN 13D2 Gibbons Pass 7100 12/29 25 5.9 9.5 11.2* 8

^{*}Average for years of record shown in 1943-57 base period.



STATUS OF RESERVOIR STORAGE

January, 1960

BASIN		USABLE	USABLE STORAGE - 1000 ACRE FEET					
& STREAM	RESERVOIR	CAPACITY 1000 A.F.	1960	1959	1943-57 Average	Years Record Used		
MISSOURI RIVER BAS	SIN - NORTH DAKOTA	<u>1</u>						
Heart River Heart River Missouri River James River	Lake Tschida E. A. Patterson Garrison Lake Jamestown	54.8AC 4.3AC 13805.0AC 20.0AC	45.8 3.9 4026.7 8.4	44.3 3.7 2860.0 12.5	53.0* 3.7*	9 8 3 3		
MISSOURI RIVER BAS	SIN - SOUTH DAKOTA							
Belle Fourche Cheyenne River Cheyenne River Grand River Missouri River Missouri River Missouri River Cheyenne River	Belle Fourche Angostura Deerfield Shadehill Ft. Randall Gavins Point Oahe Pactola	185.0AC 160.0AC 15.1AC 84.0AC 4900.0AC 385.0AC	16.0 1.0 70.4 205.0 23.5	24.5 48.5 8.4 72.1 2091.0 287.0 240.0 18.2	45.3* 10.4* 76.2	46674313		
COLUMBIA RIVER BAS	ANATHOM - NIE							
Flint Creek S. Fk. Flathead Flathead River Flathead River 6/ Flathead River 7/	Georgetown Lk. Hungry Horse Flathead Lake Camas Res. Mission Valley	31.0 3500.0 1791.0 42.8 98.6	28.4 3381.0 1535.0 34.1 54.0	29.2 3255.0 1478.0 23.2 25.7	25.3 2908.6* 1257.1 24.4 28.2	15 5 15 15 15		

6/ Camas Reservoirs are shown as a sum of (4) small reservoirs on the west side of Flathead Lake located on Dry Creek and Little Bitterroot River.

AC Active Capacity, USBR Billings.

^{*} Average for years of record shown in 1943-57 base period.

^{7/} Mission Valley Reservoirs are shown as a sum of (8) small reservoirs located south and east of Flathead Lake. Both Camas and Mission Valley reservoirs are operated by the Indian Irrigation Service.



STATUS OF RESERVOIR STORAGE

January, 1960

			1			
BASIN		USABLE	USABLE ST	CORAGE - 10	OOO ACRE FE	ET
& STREAM	RESERVOIR	CAPACITY 1000 A.F.	1960	1959	1943-57 Average	Years Record Used
MISSOURI RIVER BAS	SIN - MONTANA			The state of the s		4 to 1
Beaverhead Madison River Madison River Hyalite Creek Missouri River Missouri River	Lima Hebgen Lake Ennis Lake Middle Creek Canyon Ferry Hauser &	84.0 345.0 41.0 8.0 2043.0	37.0# 31.8 3.8 1734.0	31.1 168.7 39.4 3.9 1736.0	32.4 240.3 37.6 2.9* 1503.4*	15 15 15 7 5
Missouri River Missouri River N.Fork Sun River N.Fork Sun River N.Fork Sun River N.Fork Sun River Marias River Birch Creek Dupuyer & Birch Judith River Missouri River Milk River Milk River W. Rosebud Cr. Tongue River Swiftcurrent Cr.	Helena Lakes Lake Helena Holter Lake Gibson Willow Creek Pishkun Tiber Swift Lake Francis Ackley Lake Ft. Peck 3/ Fresno Nelson Mystic Lake Tongue River Sherburne Lk.	62.5 10.4 81.9 105.0 32.3 32.0 1316.0 30.0 112.0 5.8 19410.0 127.2 66.8 20.8 73.9 66.1	59.6 9.6 78.6 69.4 13.9 22.1 22.6 96.3 4.2 11140.0 84.6 52.6 14.0 14.2	51.5 7.4 69.9 62.9 26.7 19.9 628.9 	52.5 8.3 71.6 55.5 18.4 19.0 - 18.1 94.4 4.2 11061.0 66.6 37.2 14.5 8.2	15 15 15 15 15 15 15 15 15 15 15 15 15 1
MISSOURI RIVER BAS Shoshone River Wind River Wind River Bull Creek Belle Fourche	Buffalo Bill Boysen Pilot Butte Bull Lake Key Hole	440.0 408.6AC 31.6 152.0 190.0AC	157.5 178.7 8.0 50.6 0.1	0.0 155.8 6.1 65.7 0.0	272.4 443.4* 10.0 804.2 9.8	15 7 15 15 6

^{*} Average for years of record shown in 1943-57 base period.

2/ Gross contents. Usable capacity less 617.0 A.F. Minimum power pool 4,500 A.F. AC Active Capacity; USBR Billings.

[#] Hebgen Reservoir being evacuated for repairs due to earthquake.

